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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/700,006	11/03/2003	Donald W. Verser	210331US (CPCM:0019/FLE)	3672

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EXAMINER	
NECKEL, ALEXA DOROSHENK	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 03/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/700,006	VERSER ET AL.	
	Examiner	Art Unit	
	Alexa D. Neckel	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-17,20-22,24,25,27-36,39-41 and 43-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 3 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: an extrusion feed zone and any other previously recited element. The examiner is not able to determine how the extrusion feed zone related to any other part of the instant invention.

3. Claim 28 recites that a portion of liquid from the fractionation zone is transferred to the recycle zone. It is stated in claim 25 (on which claim 28 ultimately depends) that liquid from they recycle zone is transferred to the reaction zone "without fractionating". How can fractionated liquid be sent to the recycle zone when the liquid from that zone is explicitly recited as not being fractionated?

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 2, 5 and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,597,892) in view of Kniel (3,696,162) and Howard et al. (5,533,437).

With respect to claim 1, Hanson discloses an apparatus and process comprising:

polymerizing in a reaction zone (10);

withdrawing slurry (24) from the zone and separating fluid (30) from solids (48) in the slurry in a flash vessel (28);

condensing (38) the vaporized fluid (30);

transferring the condensed fluid (40) to a recycle zone (42); and

transferring liquid (16) from the recycle zone (42) to the reaction zone (10) without fractionating the liquid (see figure 1).

Hanson discloses wherein the solids from the flash vessel can be packaged or otherwise handled (col. 3, lines 18-22) but fails to explicitly state that they are sent to a purge zone.

Howard et al. also teaches a the recovery from a polymerization reactor effluent (17), including separating (105) solid particles (19) from the gases (15). Howard further teaches wherein solids are sent to a tank (107) where purge gas is sent through (21), generating a mixed stream (23) which is then sent to a separator (115) which separates the stream into a purge gas portion and a hydrocarbon stream (27). The recovered purge gas can be reused as a purge gas (col. 4, lines 54-57) and the hydrocarbon is recycled (via lines 7, 9) to the reactor (103). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the purge process of Howard for the solids of Hanson to stop the polymerization reaction and recycle the streams from the purge zone in order to make use of those products as well as achieve an efficient system.

Howard et al. fails to disclose wherein the recovered hydrocarbon can be sent to a fractionation zone.

Kniel teaches wherein hydrocarbon which has been purged can be sent to a fractionator in order to recover hydrocarbon solvents (col. 3, lines 54-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to send the hydrocarbons of modified Hanson to a fractionator in order to recover desirable products therefrom and make further use of a product generated by the system.

With respect to claim 2, Howard et al.'s teaching of recycling the purge gas back to the purge zone (col. 4, lines 52-57) would read on passing the recovered stream to a closed loop transfer zone.

With respect to claim 5, Howard et al. further teaches wherein recovered hydrocarbon is recycled to the reaction zone (col. 4, lines 52-57).

With respect to claim 9, Howard et al. does not teach wherein the recovered purge gas flared.

With respect to claims 10-13, Howard et al. discloses wherein the recovered purge stream is "high purity purge gas" (col. 4, lines 54-58).

With respect to claim 14, Howard et al. further discloses wherein the purge stream is nitrogen and the hydrocarbon comprises diluent (col. 4, lines 43-52).

6. Claims 3 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,597,892) in view of Kniel (3,696,162) and Howard et al. (5,533,437) as applied to claim 1 above, and further in view of Perry (3,869,807).

The modified apparatus of Hanson discloses all of the structure as discussed above, but fails to disclose an extrusion feed zone.

Perry also discloses a transfer means for the solids of a polymerization process (col. 1, lines 10-17). Perry also teaches a flash tank (7) followed by a purge zone (4) and further teaches an extruder in a sealed (col. 3, lines 5-15) connection to the purge zone (4) (see figure) so that both solids and gases would transfer to the extruder. It would have been obvious to one of ordinary skill in the art at the time of the invention to further provide an extruder to the modified Hanson et al. in order to make use of the products of the system.

7. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,597,892) in view of Kniel (3,696,162) and Howard et al. (5,533,437), as applied to claim 1 above, and further in view of Kreischer et al. (6,045,661).

With respect to claims 6 and 7, Hanson discloses wherein vapors are removed from the recycle zone (42) (col. 3, lines 6-7) but fails to disclose any further treatment of the vapors.

Kreischer et al. also teaches the recovery from a polymerization reactor effluent including the flash separation of the slurry (14, 30), cooling of recovered vapors (58), as well as fractionating the vapors (16, 94) to recover heavy hydrocarbons. It would have been obvious to one of ordinary skill in the art at the time of the invention to send the vapors of Hanson to a fractionating column, as taught by Kreischer, in order to recover heavy hydrocarbons from the produced vapors before they are released into the atmosphere.

8. Claims 15-17, 20-22, 24 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,597,892) in view of Kreischer et al. (6,045,661), Howard et al. (5,533,437) and Perry (3,869,807).

With respect to claims 15, 16, and 45, Hanson discloses an apparatus and process comprising:

polymerizing in a reaction zone (10);

withdrawing slurry (24) from the zone and separating fluid (30) from solids (48) in the slurry in a flash vessel (28);

condensing (38) the vaporized fluid (30);

transferring the condensed fluid (40) to a recycle zone (42); and

transferring liquid (16) from the recycle zone (42) to the reaction zone (10) without fractionating the liquid (see figure 1).

Hanson discloses wherein vapors are removed from the recycle zone (42) (col. 3, lines 6-7) but fails to disclose any further treatment of the vapors.

Kreischer et al. also teaches the recovery from a polymerization reactor effluent including the flash separation of the slurry (14, 30), cooling of recovered vapors (58), as well as fractionating the vapors (16, 94) to recover heavy hydrocarbons. It would have been obvious to one of ordinary skill in the art at the time of the invention to send the vapors of Hanson to a fractionating column, as taught by Kreischer, in order to recover heavy hydrocarbons from the produced vapors before they are released into the atmosphere.

Hanson discloses wherein the solids from the flash vessel can be packaged or otherwise handled (col. 3, lines 18-22) but fails to explicitly state that they are sent to a purge zone.

Howard et al. also teaches a the recovery from a polymerization reactor effluent (17), including separating (105) solid particles (19) from the gases (15). Howard further teaches wherein solids are sent to a tank (107) where purge gas is sent through (21), generating a mixed stream (23) which is then sent to a separator (115) which separates the stream into a purge gas portion and a hydrocarbon stream (27). The recovered purge gas can be reused as a purge gas (col. 4, lines 54-57) and the hydrocarbon is recycled (via lines 7, 9) to the reactor (103). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the purge process of Howard for the solids of Hanson to stop the polymerization reaction and recycle the streams from the purge zone in order to make use of those products as well as achieve an efficient system.

The modified apparatus of Hanson discloses all of the structure as discussed above, but fails to disclose an extrusion feed zone.

Perry also discloses a transfer means for the solids of a polymerization process (col. 1, lines 10-17). Perry also teaches a flash tank (7) followed by a purge zone (4) and further teaches an extruder in a sealed (col. 3, lines 5-15) connection to the purge zone (4) (see figure) so that both solids and gases would transfer to the extruder. It would have been obvious to one of ordinary skill in the art at the time of the invention to

further provide an extruder to the modified Hanson et al. in order to make use of the products of the system.

With respect to claim 20, Kreischer et al. discloses wherein a second fractionating column (94) is connected to the top product of a first column (16).

With respect to claim 21, Kreischer et al. discloses that having a sidedraw is preferred (col. 4, lines 37-38), thereby contemplates that the columns do not require sidedraws. It has been held that the elimination of an element of a known invention when its function is not desired nor required is obvious. *Ex parte Wu* , 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989) See also *In re Larson*, 340 F.2d 965, 144 USPQ 347 (CCPA 1965); and *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

With respect to claims 17 and 22, Howard et al. further teaches wherein recovered hydrocarbon is recycled to the reaction zone (col. 4, lines 52-57).

With respect to claim 24, Howard et al. does not teach wherein the recovered purge gas flared.

9. Claims 25, 27, 29-36, 39, 41, 43, 46, 47 and 49-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,597,892) in view of Kreischer et al. (6,045,661) and Howard et al. (5,533,437).

With respect to claims 25, 27, 36, 46 and 49-51, Hanson discloses an apparatus and process comprising:

polymerizing in a reaction zone (10);

withdrawing slurry (24) from the zone and separating fluid (30) from solids (48) in the slurry in a flash vessel (28);

condensing (38) the vaporized fluid (30);

transferring the condensed fluid (40) to a recycle zone (42); and

transferring liquid (16) from the recycle zone (42) to the reaction zone (10) without fractionating the liquid (see figure 1).

Hanson discloses wherein vapors are removed from the recycle zone (42) (col. 3, lines 6-7) but fails to disclose any further treatment of the vapors.

Kreischer et al. also teaches the recovery from a polymerization reactor effluent including the flash separation of the slurry (14, 30), cooling of recovered vapors (58), as well as fractionating the vapors (16, 94) to recover heavy hydrocarbons. It would have been obvious to one of ordinary skill in the art at the time of the invention to send the vapors of Hanson to a fractionating column, as taught by Kreischer, in order to recover heavy hydrocarbons from the produced vapors before they are released into the atmosphere.

Hanson discloses wherein the solids from the flash vessel can be packaged or otherwise handled (col. 3, lines 18-22) but fails to explicitly state that they are sent to a purge zone.

Howard et al. also teaches a the recovery from a polymerization reactor effluent (17), including separating (105) solid particles (19) from the gases (15). Howard further teaches wherein solids are sent to a tank (107) where purge gas is sent through (21), generating a mixed stream (23) which is then sent to a separator (115) which separates the stream into a purge gas portion and a hydrocarbon stream (27). The recovered purge gas can be reused as a purge gas (col. 4, lines 54-57) and the hydrocarbon is

recycled (via lines 7, 9) to the reactor (103). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the purge process of Howard for the solids of Hanson to stop the polymerization reaction and recycle the streams from the purge zone in order to make use of those products as well as achieve an efficient system.

With respect to claims 30-33, Howard et al. discloses wherein the recovered purge stream is "high purity purge gas" (col. 4, lines 54-58).

With respect to claim 34, Howard et al. discloses wherein the purge stream is nitrogen and the hydrocarbon comprises diluent (col. 4, lines 43-52).

With respect to claim 35, Howard et al. discloses wherein the purge stream can comprise particles and therefor would act as a motive force (col. 4, lines 43-53).

With respect to claim 39, Kreischer et al. discloses wherein a second fractionating column (94) is connected to the top product of a first column (16).

With respect to claim 41, Kreischer et al. discloses that having a sidedraw is preferred (col. 4, lines 37-38), thereby contemplates that the columns do not require sidedraws. It has been held that the elimination of an element of a known invention when its function is not desired nor required is obvious. *Ex parte Wu* , 10 USPQ 2031 (Bd. Pat. App. & Inter. 1989) See also *In re Larson*, 340 F.2d 965, 144 USPQ 347 (CCPA 1965); and *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975).

With respect to claims 29 and 43, Howard et al. does not teach wherein the recovered purge gas flared.

With respect to claim 47, Hanson discloses wherein the liquid (16) from the recycle tank (42) is pumped (44) to the reactor (10)

10. Claims 28, 40 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,597,892) in view of Kreischer et al. (6,045,661) and Howard et al. (5,533,437), as applied to claims 27, 39, and 46, and further in view of Kufeld et al. (6,559,247).

With respect to claims 28, 40 and 48, the modification of Hanson, as applied above, illustrates wherein the fractionation column (Kreischer: 94) generates a substantially pure olefin-free isobutene diluent (Kreischer: col. 3, lines 5-7; col. 4, lines 49-51) but fails to disclose further use for the generated diluent.

Kufeld et al. discloses the recovery from a polymerization reactor including the use of olefin-free diluent (102) from a column (98) to a catalyst mud pot (106). It would have been obvious to one of ordinary skill in the art at the time of the invention to send the olefin-free diluent of the modified process of Hanson to a catalyst mud preparation zone, as taught by Kufeld et al., in order to make efficient and economical use of the generated product.

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,597,892) in view of Kreischer et al. (6,045,661), Howard et al. (5,533,437), and Perry (3,869,807), as applied to claim 15, and further in view of Kufeld et al. (6,559,247).

With respect to claim 21, the modification of Hanson, as applied above, illustrates wherein the fractionation column (Kreischer: 94) generates a substantially pure olefin-

free isobutene diluent (Kreischer: col. 3, lines 5-7; col. 4, lines 49-51) but fails to disclose further use for the generated diluent.

Kufeld et al. discloses the recovery from a polymerization reactor including the use of olefin-free diluent (102) from a column (98) to a catalyst mud pot (106). It would have been obvious to one of ordinary skill in the art at the time of the invention to send the olefin-free diluent of the modified process of Hanson to a catalyst mud preparation zone, as taught by Kufeld et al., in order to make efficient and economical use of the generated product.

12. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanson (5,597,892) in view of Kniel (3,696,162), Howard et al. (5,533,437), and Kreischer et al. (6,045,661), as applied to claim 7 above, further in view of Kufeld et al. (6,559,247).

With respect to claim 8, the modification of Hanson, as applied above, illustrates wherein the fractionation column (Kreischer: 94) generates a substantially pure olefin-free isobutene diluent (Kreischer: col. 3, lines 5-7; col. 4, lines 49-51) but fails to disclose further use for the generated diluent.

Kufeld et al. discloses the recovery from a polymerization reactor including the use of olefin-free diluent (102) from a column (98) to a catalyst mud pot (106). It would have been obvious to one of ordinary skill in the art at the time of the invention to send the olefin-free diluent of the modified process of Hanson to a catalyst mud preparation zone, as taught by Kufeld et al., in order to make efficient and economical use of the generated product.

Response to Arguments

Specification

The objection to the specification is withdrawn due to applicant's amendment.

35 USC 112

The rejection of claims 47 and 48 under 35 USC 112, first paragraph, are withdrawn due to applicant's amendments to the claims.

The rejection of claims 3, 6-8, 16, 18, 20-22, 26-28 and 37-41 under 35 USC 112, second paragraph are withdrawn due to applicant's amendments to the claim. It is noted that a new 35 USC 112, second paragraph rejection is made with regard to claim 3, below.

35 USC 102 and 103

Applicants arguments are all directed to the claims as amended and are considered moot in view of the new ground(s) of rejection.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa D. Neckel whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexa D. Neckel
Primary Examiner
Art Unit 1764

March 2, 2006

ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER